

HONDA

ES6500•EL5000

OWNER'S MANUAL

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manual to your computer.



Thank you for purchasing a Honda generator.

This manual covers operation and maintenance of the ES6500 and EL5000 generators. All information in this publication is based on the ES6500. Honda Motor Co., Ltd. reserves the right to make changes at any time without notice and without incurring any obligation.

No part of this publication may be reproduced without written permission.

This manual should be considered a permanent part of the generator and remain with the generator when sold.


Pay special attention to statements preceded by the following words:

 **WARNING** Indicates a strong possibility of severe personal injury or loss of life if instructions are not followed.

CAUTION: Indicates a possibility of personal injury or equipment damage if instructions are not followed.

NOTE: Gives helpful information.

If a problem should arise, or if you have any questions about the generator, consult an authorized Honda dealer.

 **WARNING** The Honda generator is designed to give safe and dependable service if operated according to instructions. Read and understand the Owner's Manual before operating the generator. Failure to do so could result in personal injury or equipment damage.

1. GENERATOR SAFETY

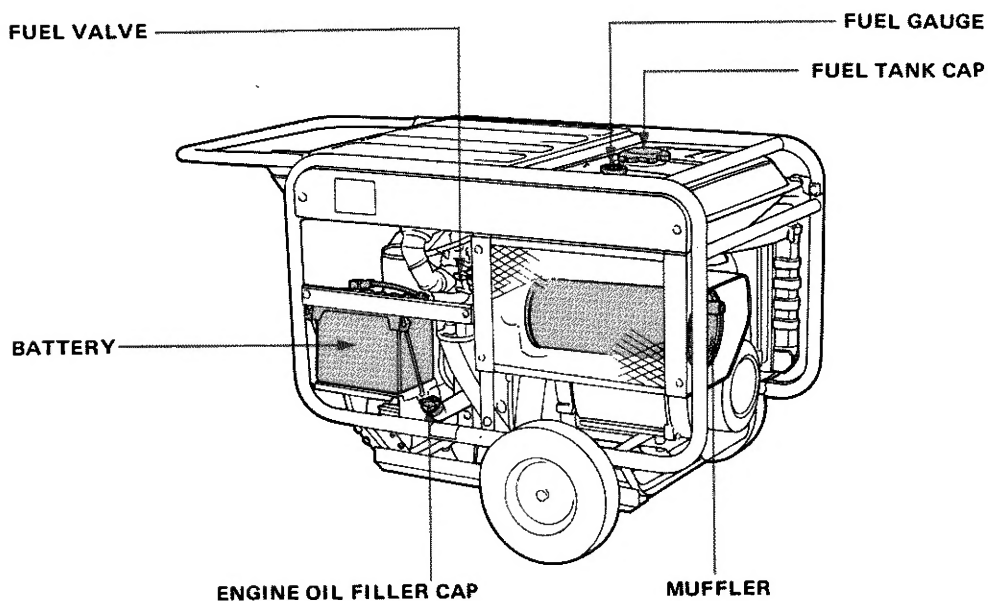
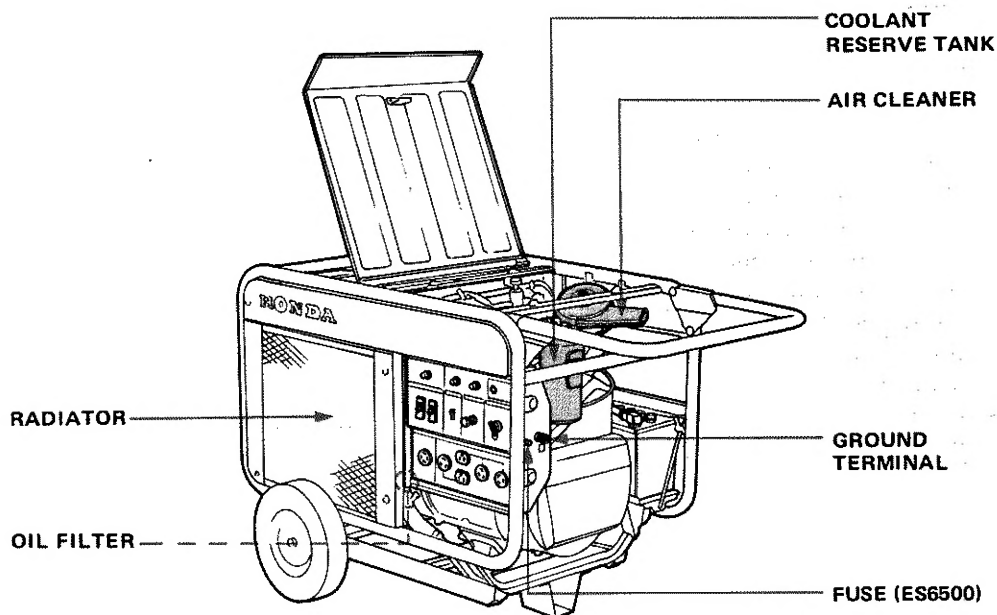
WARNING

To ensure safe operation —

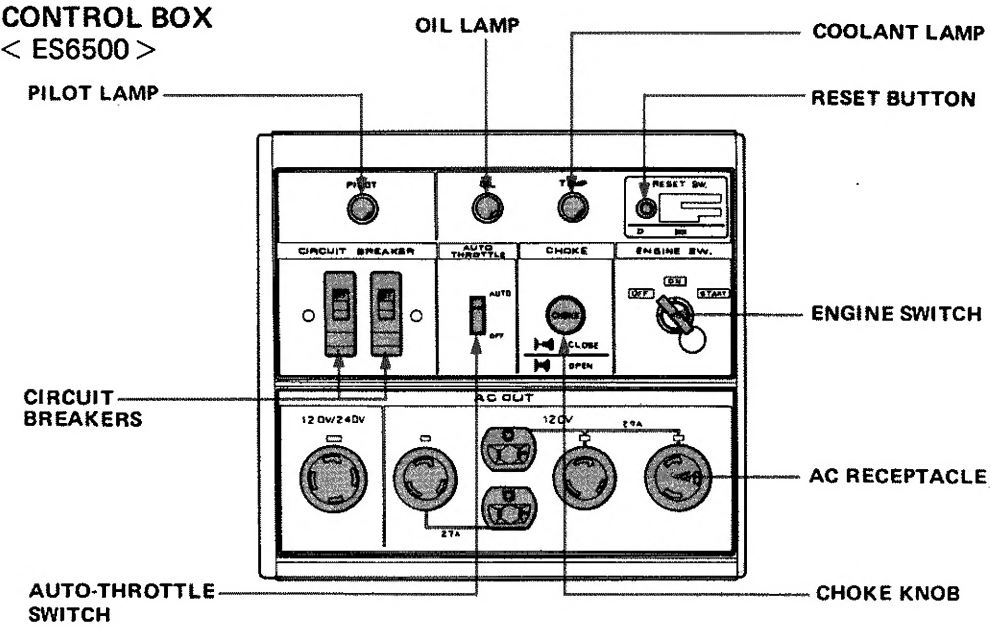
- Place the generator at least 1 m (3 ft) away from buildings or other equipment when operating the generator.
- Operate the generator on a level surface.
If the generator is tilted, fuel spillage may result.
- Exhaust gas contains poisonous carbon monoxide.
Never run the generator in an enclosed area.
Be sure to provide adequate ventilation.
- Know how to stop the generator quickly and understand operation of all the controls. Never permit anyone to operate the generator without proper instructions.
- Keep children and pets away from the generator when it is in operation.
- Keep away from rotating parts while the generator is running.
- The generator is a potential source of electrical shocks when misused; do not operate with wet hands.

Do not operate the generator in rain or snow and do not let it get wet.

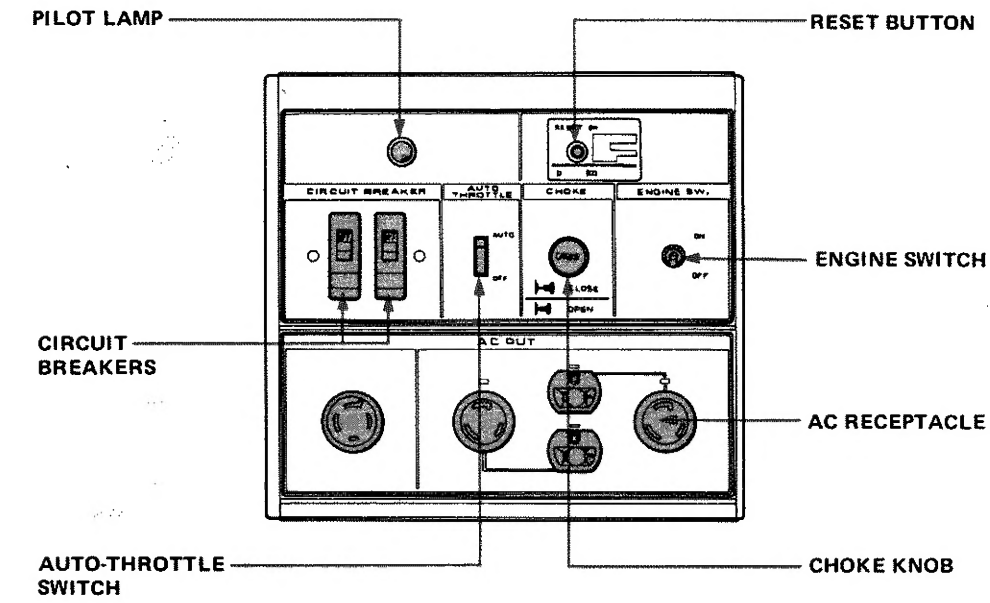
2. COMPONENT IDENTIFICATION



CONTROL BOX
< ES6500 >



< EL5000 >



3. PRE-OPERATION CHECK

CAUTION: Be sure to check the generator on a level surface with the engine stopped.

1. Check the engine oil level.

CAUTION: Engine oil is a major factor affecting engine performance and service life. Non-detergent or vegetable oils are not recommended.

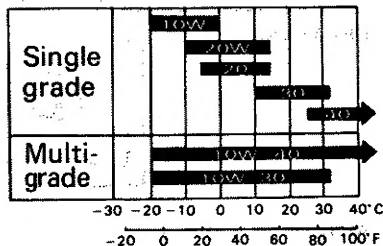
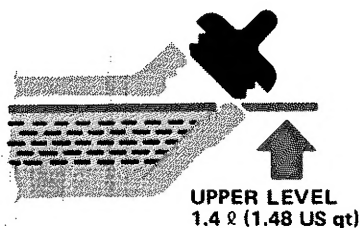
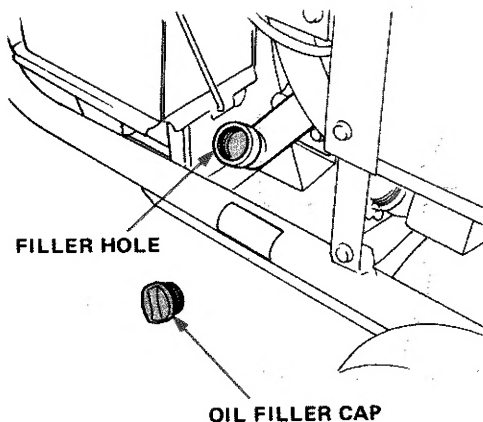
Use Honda 4-stroke oil, or an equivalent high detergent, premium quality motor oil certified to meet or exceed U.S. automobile manufacturer's requirements for Service Classification SE or SF. (Motor oils classified SE or SF will show this designation on the container.)

SAE 10W-40 is recommended for general, all-temperature use. If single viscosity oil is used, select the appropriate viscosity for the average temperature in your area.

Remove the oil filler cap and check the oil level.

If the level is low, fill to the top of the oil filler neck with the recommended oil.

Oil capacity: 1.4 ℓ (1.48 US qt)



2. Check the fuel level.

Use any regular grade automotive gasoline (unleaded gasoline is preferred) with a pump octane rating of 86 or higher.

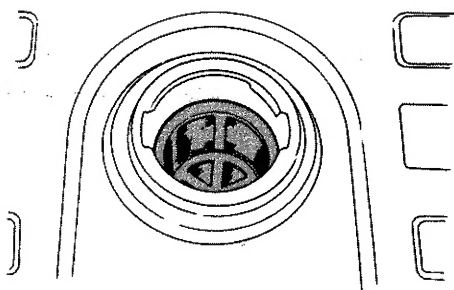
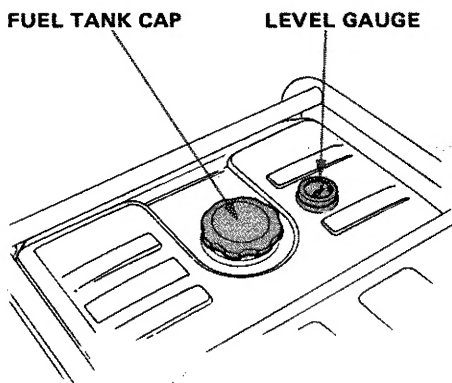
Never use an oil/gasoline mixture or dirty gasoline. Avoid getting dirt, dust or water in the fuel tank.

CAUTION: Gasoline substitutes are not recommended; they may be harmful to the fuel system components.

Fuel tank capacity: 16.5 l (4.36 US gal)

WARNING

- Gasoline is extremely flammable and explosive under certain conditions. Refuel in a well ventilated area with the engine stopped.
- Do not smoke or allow flames or sparks in the area where the generator is refueled or where gasoline is stored.
- Do not overfill the tank and make sure the filler cap is securely closed after refueling.
- Be careful not to spill fuel when refueling. Fuel vapor or spilled fuel may ignite. If any fuel is spilled, make sure the area is dry before starting the engine.



3. Check the coolant level.

If there is no coolant in the reserve tank, check the cooling system for leaks and repair if necessary. Add coolant to the radiator, then check the coolant level in the reserve tank after the engine reaches operating temperature.

WARNING Never remove the radiator cap when the engine is hot. The coolant is under pressure and severe scalding could result.

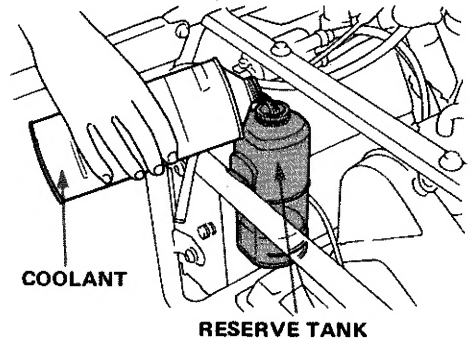
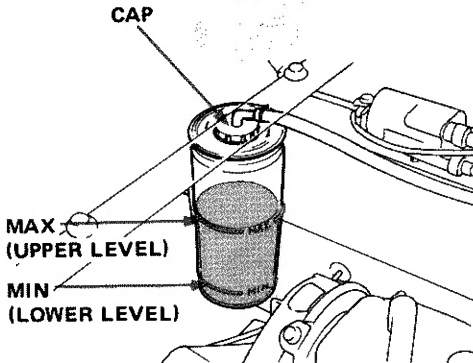
When the engine is at operating temperature, the coolant level should be between the MIN and MAX marks on the reserve tank. If the level is near the MIN mark, add coolant to bring it up to the MAX mark.

Coolant Recommendation

Use high quality ethylene glycol antifreeze that is specifically formulated for use in aluminum engines. Mix the antifreeze with low-mineral drinking water or distilled water.

A 50/50 mixture of ethylene glycol antifreeze and water is recommended for most temperatures and provides good corrosion protection. A higher concentration of antifreeze decreases cooling efficiency and is recommended only if additional protection against freezing is needed. A concentration of less than 40% antifreeze will not provide proper corrosion protection.

CAUTION: The use of unsuitable antifreeze, hard water, or salt water may cause corrosion damage that will shorten the life of the engine.



4. Check the battery.

The electrolyte level must be maintained between the UPPER and LOWER level marks. If the electrolyte level is near the LOWER mark, add distilled water.

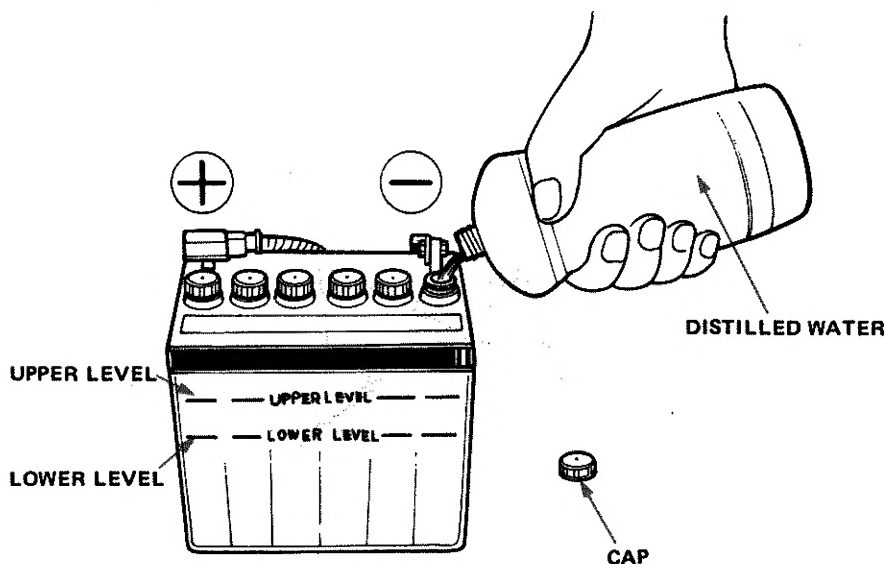
WARNING

- The battery contains sulfuric acid. Avoid contact with skin, eyes or clothing. Antidote: **EXTERNAL** — Flush with water. **INTERNAL** — Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetable oil. Call a physician immediately. Eyes: Flush with water and get prompt medical attention.
- Batteries produce explosive gases. Keep sparks, flames and cigarettes away. Always shield the eyes when working near batteries.

CAUTION:

- Use only distilled water in the battery. Tap water will shorten the service life of the battery.
- Do not fill the battery beyond the UPPER level. If overfilled, electrolyte may overflow and corrode generator components. Immediately wash off any spilled electrolyte.

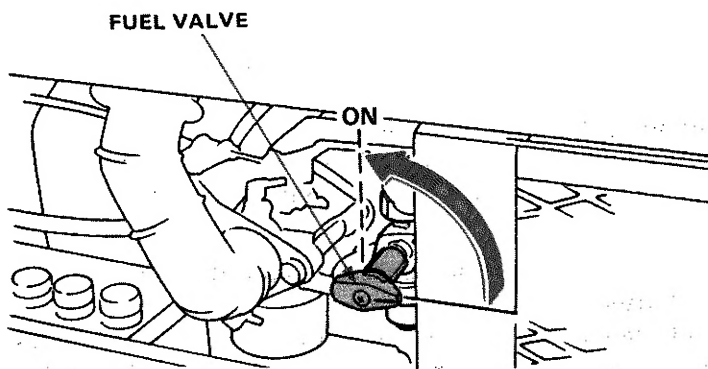
Check the battery terminals to be sure the cables are tightened and free of corrosion. Remove any corrosion and coat the terminals and cable ends with grease.



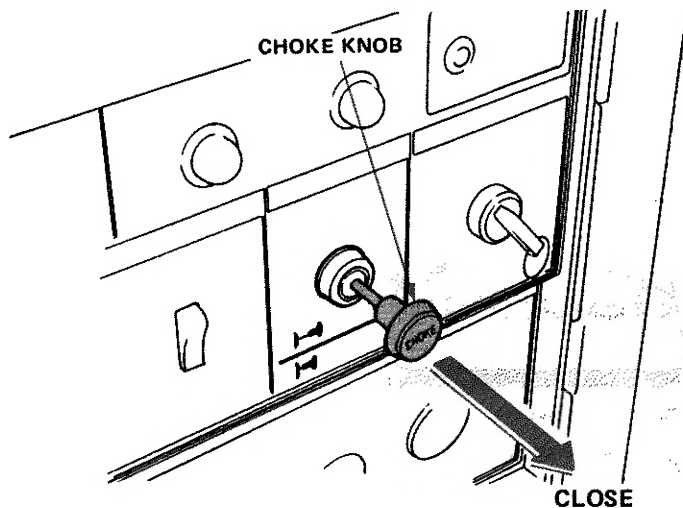
4. STARTING THE ENGINE

< ES6500 >

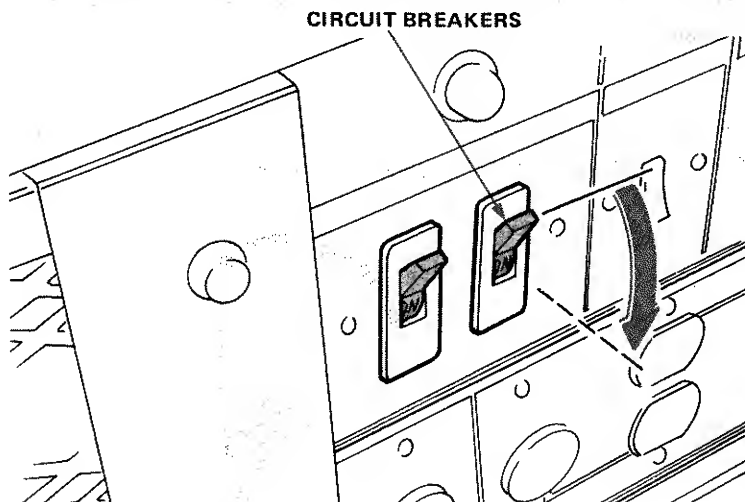
1. Turn the fuel valve ON.



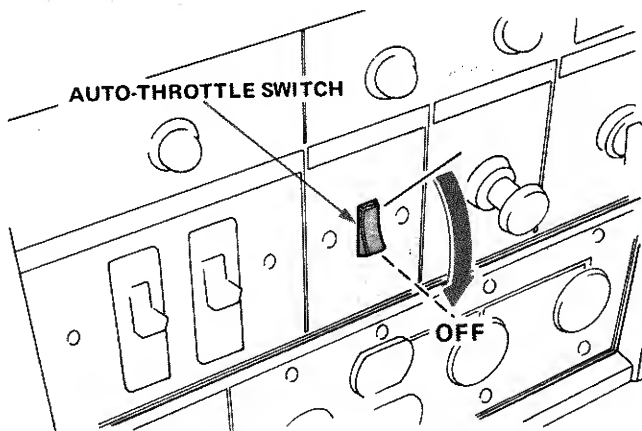
2. Pull the choke knob out to close the choke.
Even if the engine is hot, this will aid starting.



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3. Make sure that the circuit breakers are OFF.
The generator may be hard to start if a load is connected.



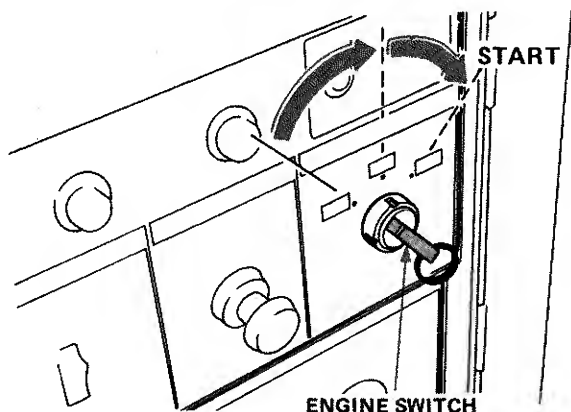
4. Make sure the auto-throttle switch is off, or more time will be required for warm up.



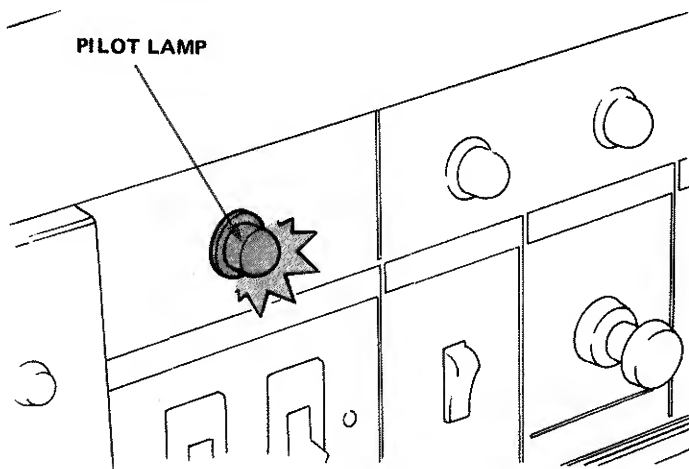
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5. Turn the engine switch to START and hold it there until the engine starts. Do not use the electric starter for more than 5 seconds at a time. If the engine fails to start, release the switch and wait 10 seconds before operating the starter again.

NOTE:

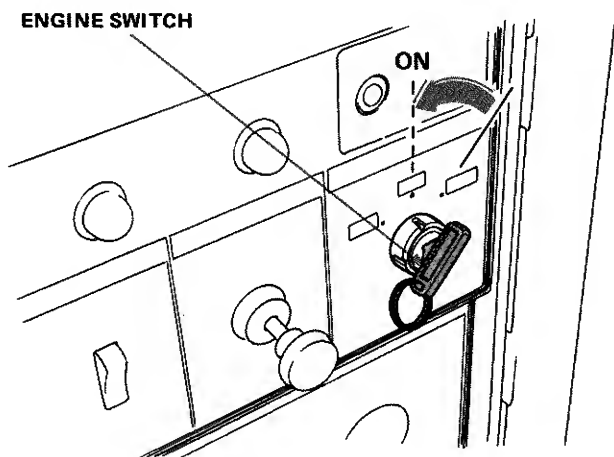
- When the speed of the starter motor drops after a period of time, it is an indication that the battery should be recharged.



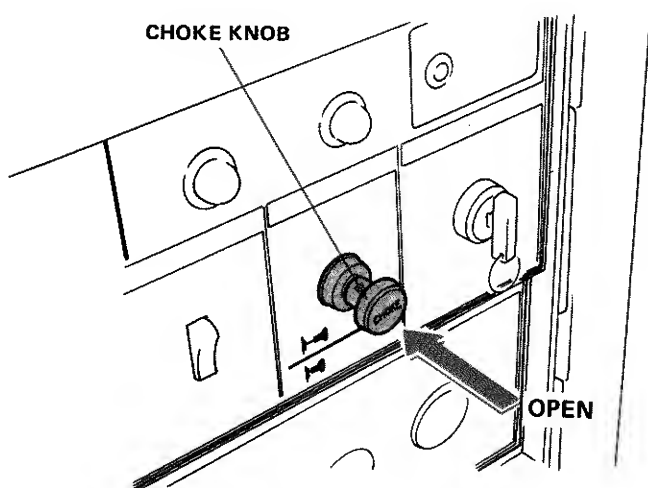
NOTE: It is normal for the oil lamp to remain lit during starting. If the oil level is OK, the oil lamp will go off when the engine is running. If the oil level is low, the oil lamp will stay on and the engine will not run.



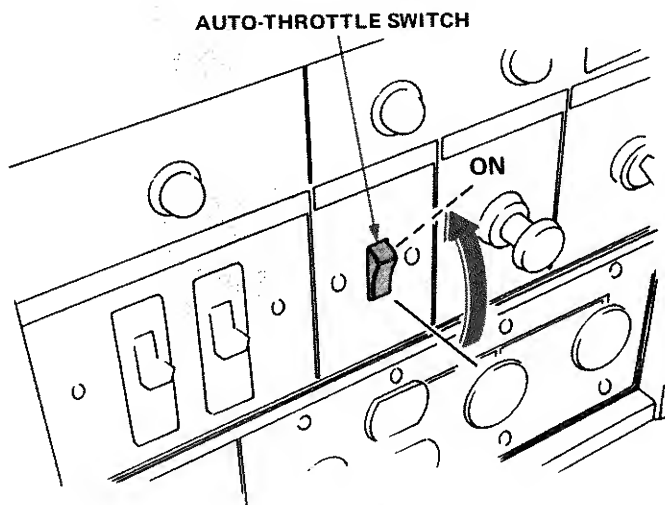
6. After the engine starts, let the engine switch return to ON.



7. Push the choke knob in to open as the engine starts.

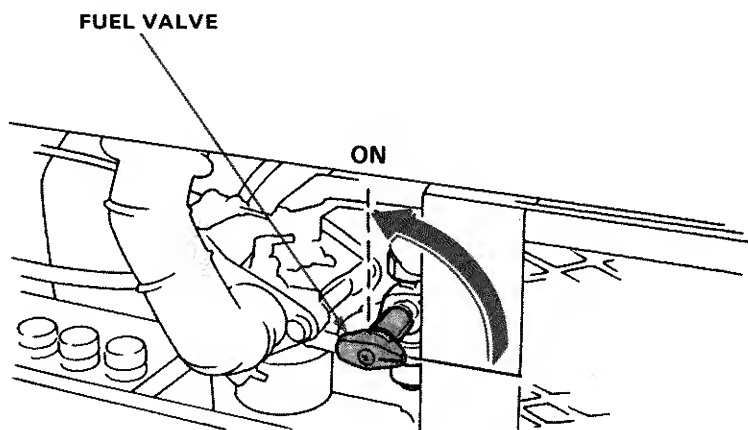


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8. Warm up the engine for 2-3 minutes. Turn the auto-throttle switch to AUTO after the engine has warmed up.

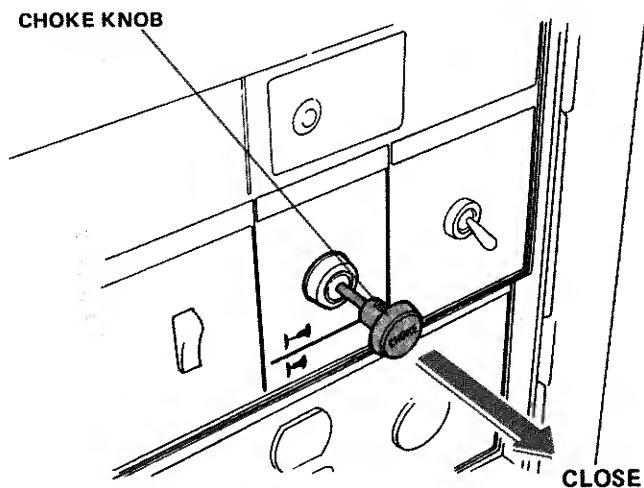


< EL5000 >

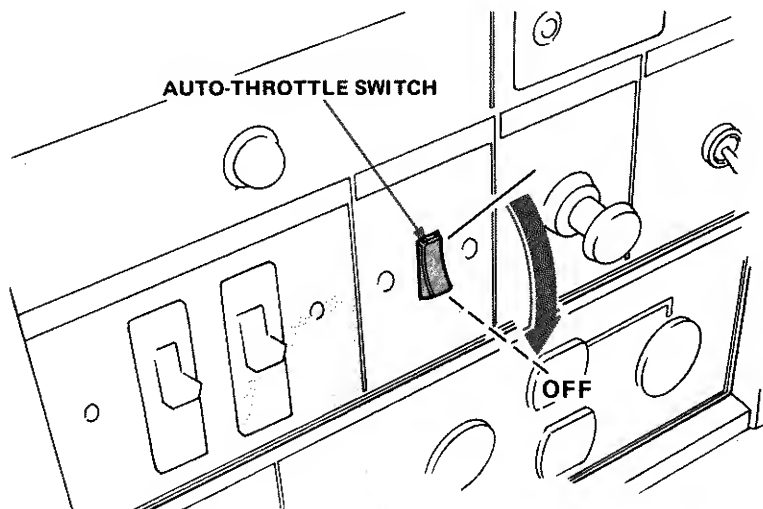
1. Turn the fuel valve ON.



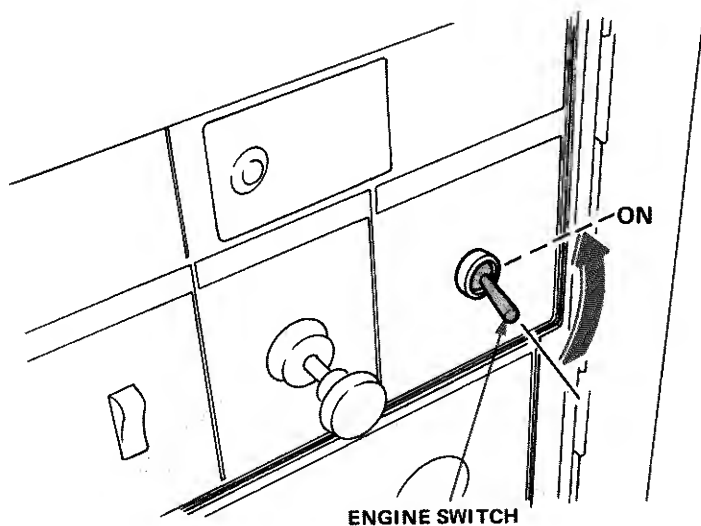
2. Pull the choke knob out to close the choke.
Even if the engine is hot, this will aid starting.



-
3. Make sure the auto-throttle switch is off, or more time will be required for warm up.

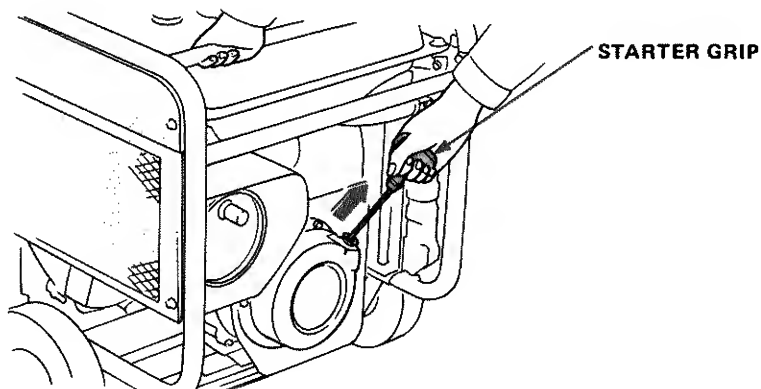


4. Turn the engine switch on.

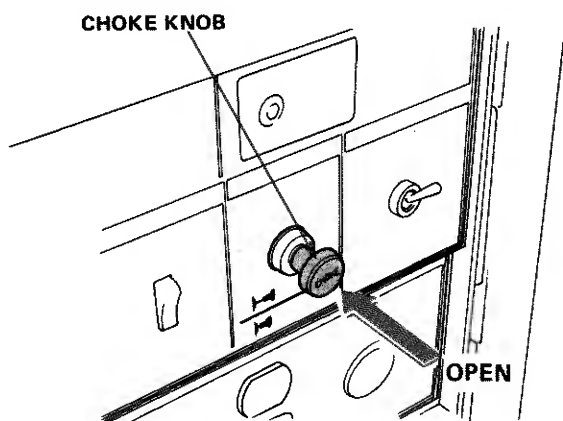


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5. Pull the starter grip until compression is felt, then pull briskly.

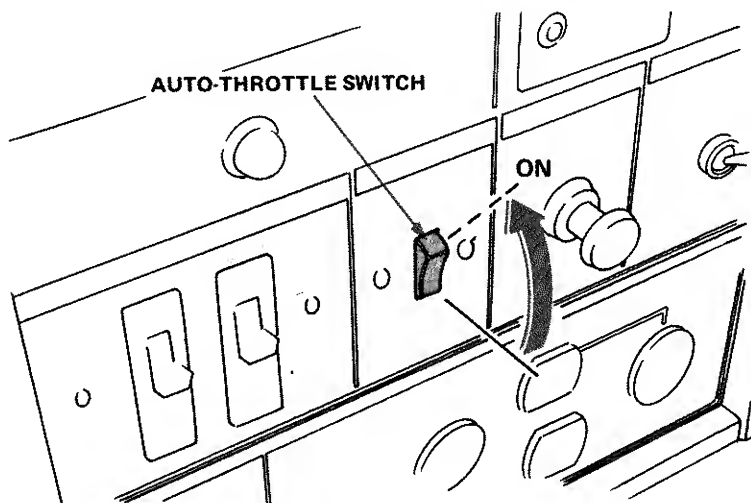
NOTE: Do not allow the starter grip to snap back. Return it slowly by hand.



6. Push the choke knob in to open the choke after the engine starts.



-
7. Warm up the engine for 2-3 minutes. Turn the auto-throttle switch to AUTO after the engine has warmed up.



5. GENERATOR USE

WARNING To prevent electrical shock from faulty appliances, the generator should be grounded. Connect a length of heavy wire between the ground terminal and the ground source.

CAUTION: Limit operation requiring maximum power (ES6500: 6.5 KVA, EL5000: 5.0 KVA) to 30 minutes.

For continuous operation, do not exceed the rated power of 6.0 KVA (ES6500), 5.0 KVA (EL5000).

In either case, the total wattage of all appliances connected must be considered.

- Connections for standby power to household circuits must be made by a qualified electrician and must comply with all applicable laws and electrical codes. Improper installation may result in personal injury or damage to equipment or property.

Auto-throttle system

With the switch in the AUTO position, engine speed is automatically reduced to an idle when all loads are turned off or disconnected. When appliances are turned on or reconnected, the engine resumes the rated speed. At OFF, the auto-throttle system does not operate.

NOTE:

- AUTO is recommended to minimize fuel consumption.
- The auto-throttle system will not respond to electrical loads of less than 1 ampere.
- The system is not effective for use with appliance that requires only momentary power. To avoid extended warm-up periods, keep the switch OFF until the engine reaches operating temperature.

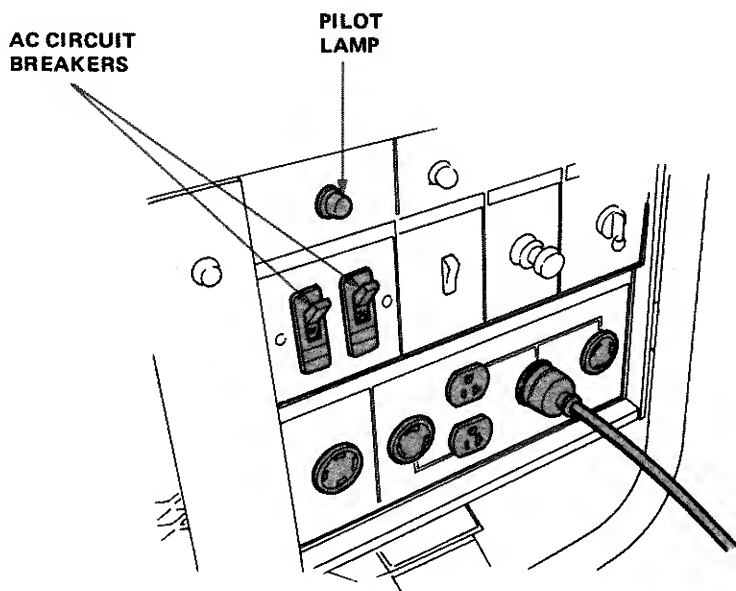
Operation

1. Start the engine and make sure that the pilot lamp comes on. With the engine switch in START, the oil lamp (ES6500 only) should go on.
2. Switch on the circuit breakers.
3. Plug in the appliance.

NOTE: Connect the 120V sources to the 120V appliances. You can use both 120V/240V sources with the 120V/240V appliances.

CAUTION: Be sure that appliances do not exceed the rated load for more than 30 minutes, and never exceed the maximum load. Substantial overloading will switch off the circuit breaker. Lesser overloading will not switch off the circuit breaker and will shorten the service life of the generator.

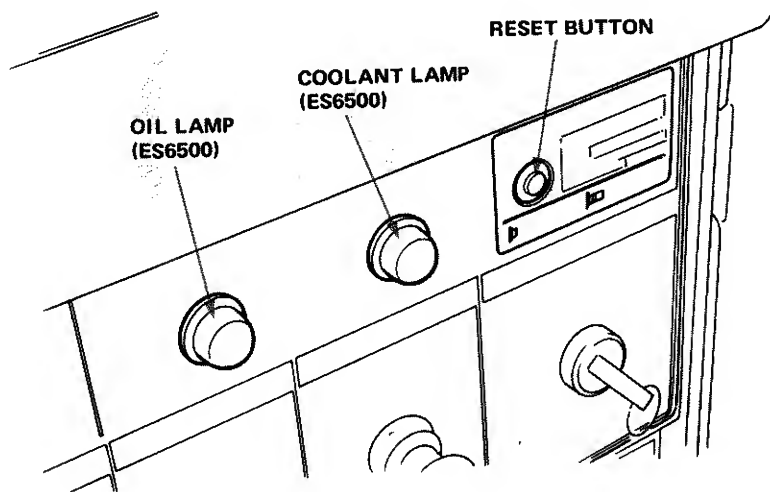
NOTE: This generator is equipped with an AVR (Automatic Voltage Regulator) for stable voltage supply.



Engine Protection Circuit

If the oil or coolant levels run low during operation, the protection circuit will automatically stop the engine to prevent damage.

If this occurs, add oil or coolant as required, push the reset button in, then restart the engine.

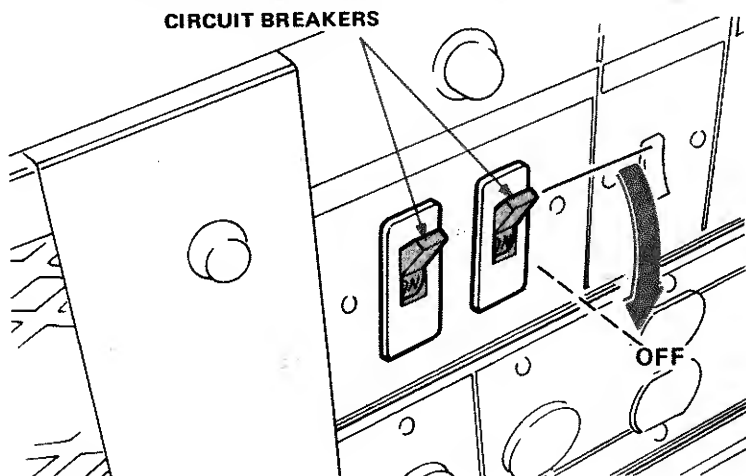


6. STOPPING THE ENGINE

To stop the engine in an emergency, move the engine switch to OFF.

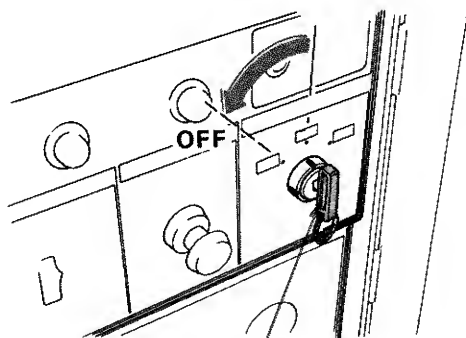
In normal use:

1. Turn the circuit breakers OFF.



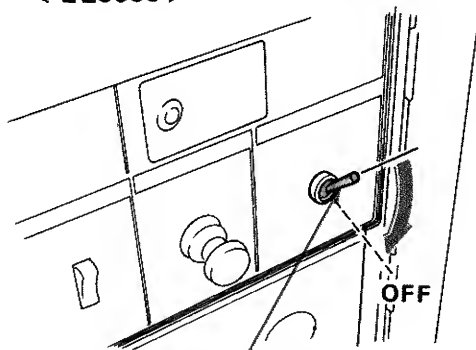
2. Turn the engine switch OFF.

< ES6500 >



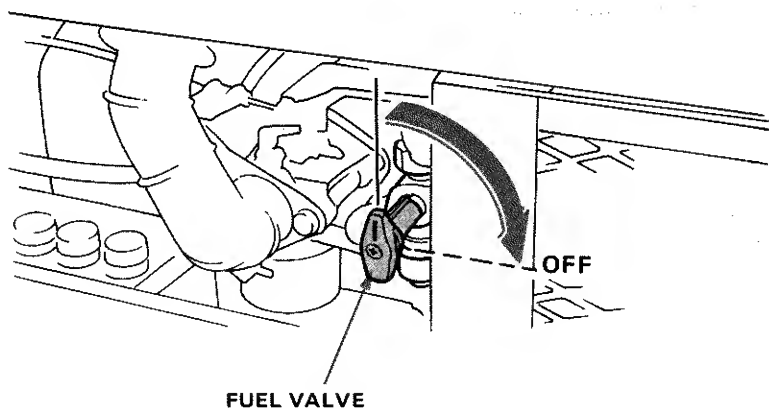
ENGINE SWITCH

< EL5000 >



ENGINE SWITCH


3. Turn the fuel valve OFF.



7. MAINTENANCE

The purpose of the maintenance schedule and adjustment is to keep the generator in the best operating condition.

Inspect or service as scheduled in the table on the next page.

 **WARNING** Shut off the engine before performing any maintenance. If the engine must be run, make sure the area is well ventilated. The exhaust contains poisonous carbon monoxide gas.

CAUTION: Use only genuine HONDA parts or their equivalent. The use of replacement parts which are not of equivalent quality may damage the generator.

Maintenance Schedule

REGULAR SERVICE PERIOD Perform at every indicated month or operating hour interval, whichever occurs first.		Daily	First month or 20 Hrs.	Every 3 months or 50 Hrs.	Every 6 months or 100 Hrs.	Every year or 300 Hrs.	Every 2 years
ITEM							
Engine oil	Inspection	●					
	Change		●		●		
Air cleaner element	Inspection	●					
	Cleaning			● (1)			
Fuel filter cleaning					●		
Spark plug maintenance					●		
Valve clearance adjustment						● (2)	
Oil filter change							● (2)
Radiator coolant	Inspection	●					
	Change						● (2)
Battery inspection		●					
Fuel line inspection (Replace if necessary)						●	
Spark arrester		Clean every 100 operating hours.					

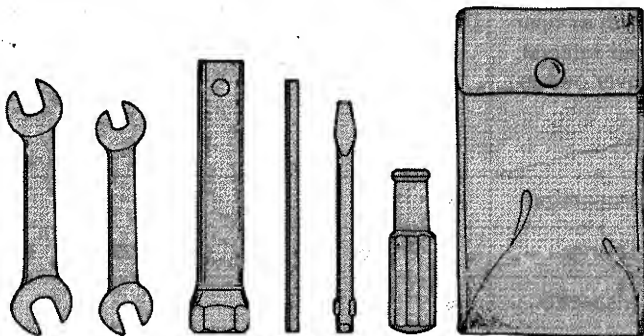
NOTE (1) : Service more frequently when used in dusty areas.

(2) : These items should be serviced by an authorized Honda dealer, unless the owner has the proper tools and is mechanically proficient. See the Honda Shop Manual.

Toll kit

The tools supplied are necessary for performing some periodic maintenance, simple adjustments and repairs.

Always keep the kit with the generator.

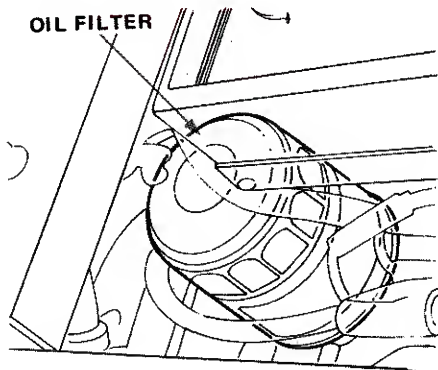
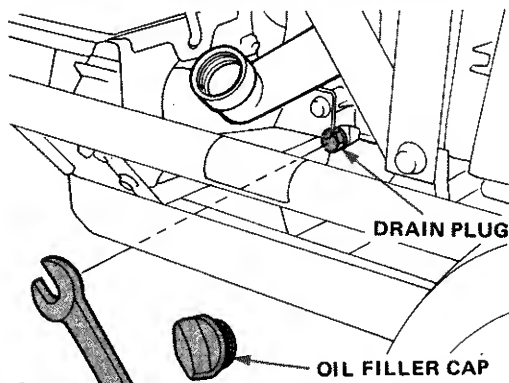


Engine oil and oil filter change

Drain the oil while the engine is still warm to assure rapid and complete draining.

1. Remove the drain plug and filler cap, and drain the oil. Retighten the plug securely, and reinstall the filler cap.
2. Remove the oil filter with a filter wrench and let the remaining oil drain out.
3. Apply a thin coat of engine oil to the filter rubber seal and screw it on by hand until you feel it seat against the engine, then turn it $3/4$ of a turn more.
4. Fill the crankcase with the recommended oil (See page 4) and check the level. Recheck the level after running the engine for a few minutes.

Total oil capacity: 1.4 l (1.48 US qt)



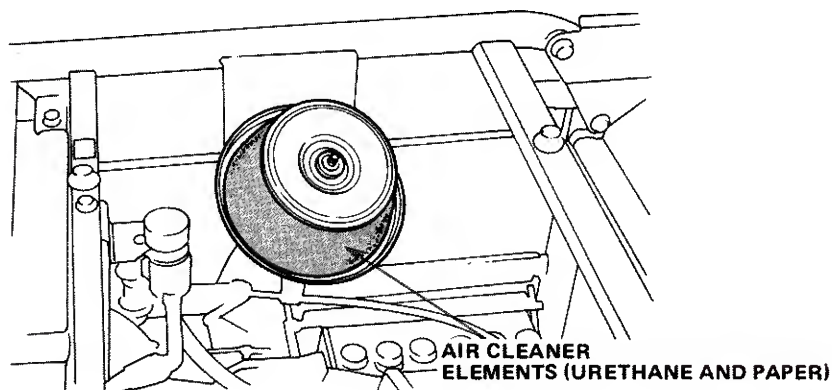
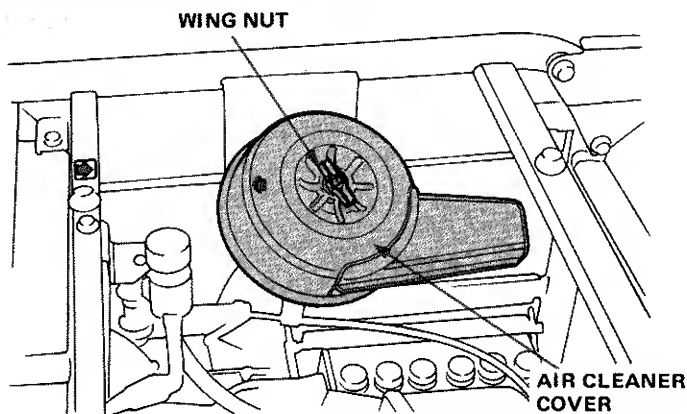
Air cleaner service

A dirty air cleaner will restrict air flow to the carburetor. To prevent carburetor malfunction, service the air cleaner regularly (page 23). Service more frequently when operating the generator in extremely dusty areas.

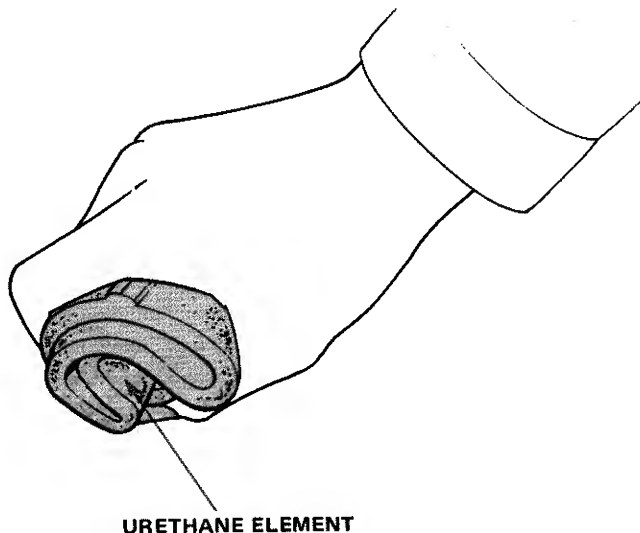
WARNING Never use gasoline or low flash point solvents for cleaning the air cleaner elements. A fire or explosion could result.

CAUTION: Never run the generator without the air cleaner. Rapid engine wear may result.

1. Open the top cover.
2. Unscrew the wing nut and remove the air cleaner cover.
3. Remove the urethane and paper elements.



-
4. Carefully check both elements for holes or tears and replace as required. Damaged elements will pass dirt into the system. Always clean the filter housing and air passages before installing clean elements.
 5. Foam element: Clean in warm soapy water: rinse and allow to dry thoroughly. Or clean in high flash-point solvent and allow to dry. Dip the element in clean engine oil and squeeze out all the excess. The engine will smoke during initial start-up if too much oil is left in the foam.
 6. Paper element: Tap the element lightly several times on a hard surface to remove excess dirt, or blow compressed air through the filter from the inside out. Never try to brush the dirt off: brushing will force dirt into the fibers. Clean in warm, soapy water and rinse. Dry using compressed air blown from the inside out, or shake the element and allow it to air dry thoroughly. (Or clean in high flash-point solvent, remove immediately, and allow to dry.) Oil the outside of the paper with a light aerosol oil such as WD-40. The engine will smoke during initial start-up if too much oil is used.
 7. Reinstall the elements and air cleaner cover with the arrow on the cover aligned with the arrow on the frame. Tighten the wing nut securely.
 8. Reinstall the top cover.

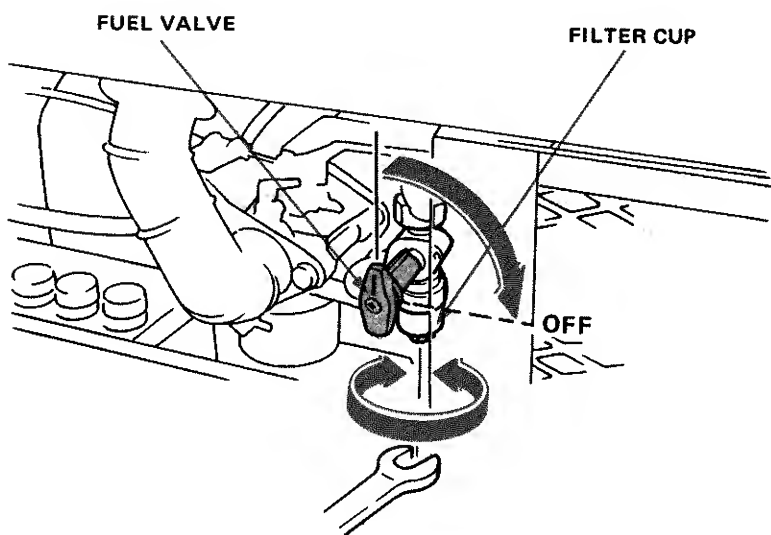


Fuel filter service

The filter prevents dirt or water which may be in the fuel tank from entering the carburetor. If the engine has not been run for a long time, the filter should be cleaned.

1. Turn the fuel valve OFF. Remove the filter cup.
2. Clean the cup thoroughly.
3. Reassemble. Do not damage the O-ring.

WARNING After installing the filter cup, check for fuel leaks and make sure the area is dry before starting the engine.



Spark plug service

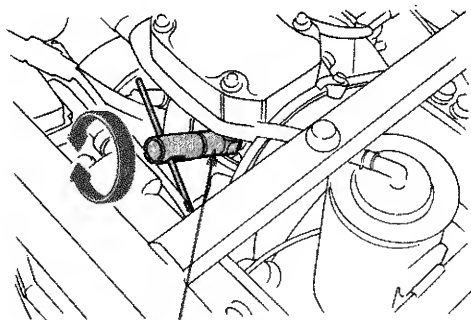
Recommended spark plug: BPR6HS-10 (NGK)

To ensure proper engine operation, the spark plug must be properly gapped and free of deposits.

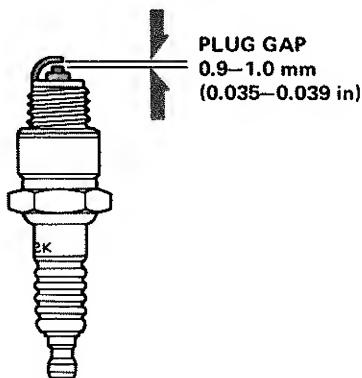
1. Open the top cover.
2. Remove the spark plug cap.
3. Use the wrench supplied in the tool kit to remove the spark plug.
4. Visually inspect the spark plug. Discard it if the insulator is cracked or chipped.
5. Measure the plug gap with a feeler gauge.
The gap should be 0.9–1.0 mm (0.035–0.039 in). Correct as necessary by bending the side electrode.
6. Attach the plug washer. Thread the plug in by hand to prevent cross-threading.
7. Tighten a new spark plug 1/2 turn with the wrench to compress the washer. If you are reusing a plug, it should only take 1/8–1/4 turn after the plug seats.
8. Close the top cover.

CAUTION:

- The spark plug must be securely tightened. An improperly tightened plug can become very hot and possibly damage the generator.
- Never use a spark plug with an improper heat range.



PLUG WRENCH



PLUG GAP
0.9–1.0 mm
(0.035–0.039 in)

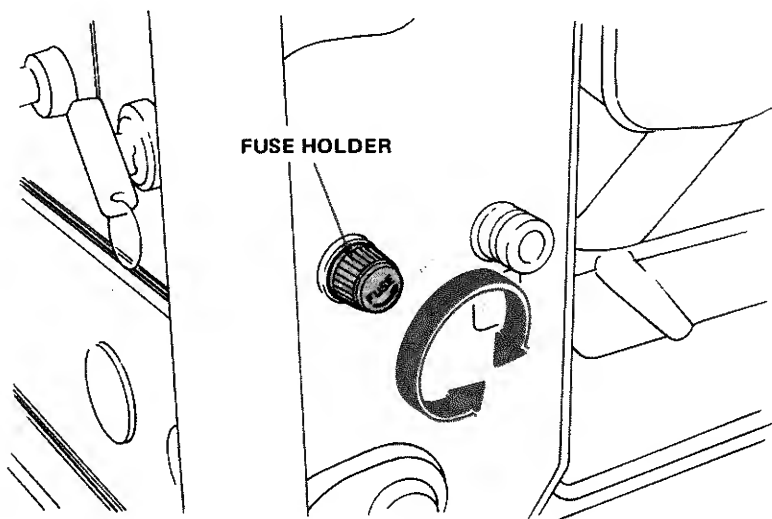
Fuse replacement (ES6500)

If the fuse is blown, the engine will not start until it is replaced.

1. Turn the engine switch OFF.
2. Remove the fuse holder and replace the fuse. Use only a 15A fuse.

CAUTION:

- If frequent fuse failure occurs, determine the cause and correct the problem before attempting to operate the generator further.
- Never use a fuse with a rating other than 15A. Serious damage to the electrical system or a fire may result.

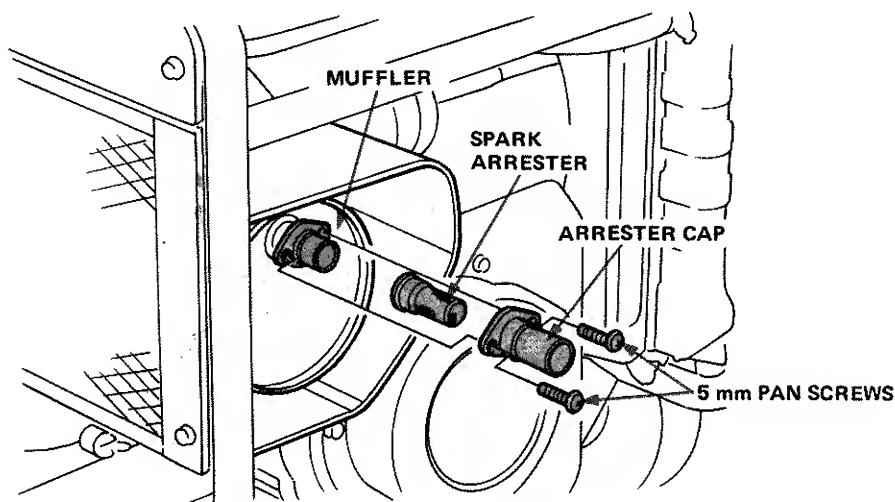


Spark arrester maintenance

WARNING If the generator has been running, the muffler will be very hot. Allow it to cool before proceeding.

CAUTION: The spark arrester must be serviced every 100 hours to maintain its efficiency.

1. Loosen two 5 mm pan screws on the arrester cap.
2. Remove the arrester cap, then pull out spark arrester taking care not to damage the wire mesh.
3. Check the muffler exhaust port for carbon deposits; clean if necessary.
4. Install the spark arrester and arrester cap on the muffler.
5. Tighten two 5 mm pan screws to the arrester cap.

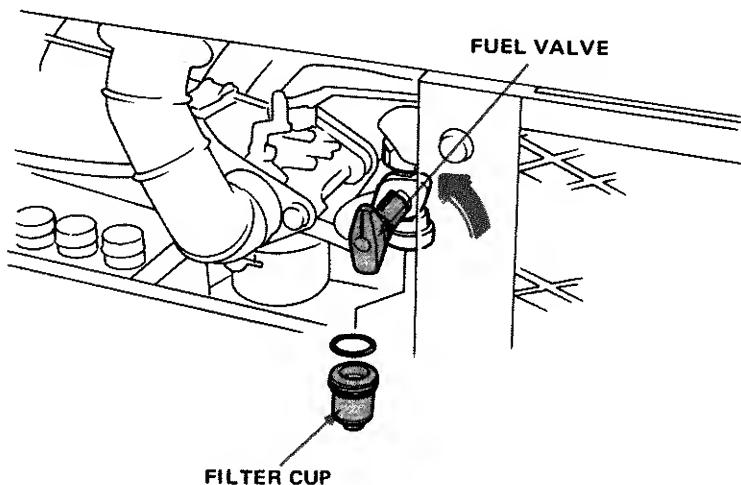


8. TRANSPORTING/STORAGE

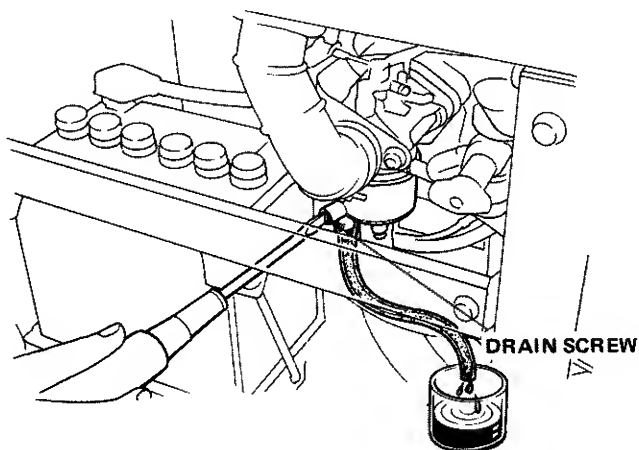
WARNING When transporting the generator, turn the engine switch OFF and keep the generator level to prevent fuel spillage. Fuel vapor or spilled fuel may ignite.

Before storing the unit for an extended period:

1. Be sure the storage area is free of excessive humidity and dust.
2. Drain the fuel —
 - a. With the fuel valve OFF, remove and empty the filter cup.
 - b. Turn the fuel valve ON and drain the gasoline in the fuel tank into a suitable container.
 - c. Replace the filter cup and tighten securely.



-
- d. Drain the carburetor by loosening the drain screw. Drain the gasoline into a suitable container.



3. Once a month, recharge the battery.

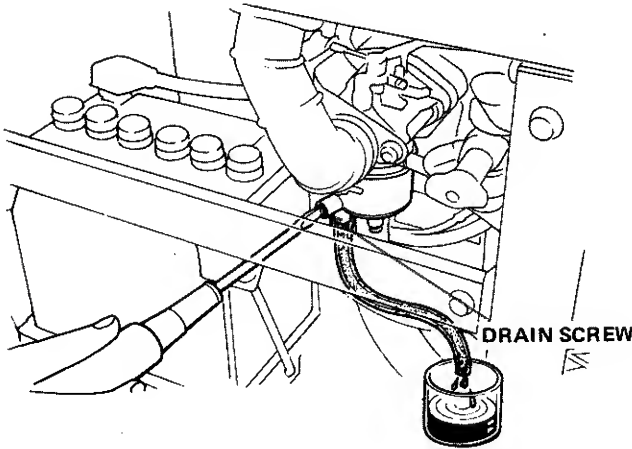
9. TROUBLESHOOTING

A. When the engine will not start:

1. Is there enough fuel?
2. Is the fuel valve on?
3. Is gasoline reaching the carburetor?

To check, loosen the drain screw with the fuel valve on.

WARNING If any fuel is spilled, make sure the area is dry before testing the spark plug or starting the engine. Fuel vapor or spilled fuel may ignite.



4. Is the reset button pushed in?
5. Are the circuit breakers off?
6. Is the engine switch on?
7. Is the fuse good?
8. Is there a spark at the spark plug (Page 34)?

-
- a. Remove the spark plug cap. Clean any dirt from around the spark plug base, then remove the spark plug.
 - b. Install the spark plug in the plug cap.
 - c. Turn the engine switch on.
 - d. Grounding the side electrode to any engine ground, crank the engine to see if sparks jump across the gap.
 - e. If there are no sparks, replace the plug.
If OK, try to start the engine according to the instructions.
9. If the engine still does not start, take the generator to the dealer.
- B. When the engine starts but stops immediately:
- a. Is there enough oil in the crankcase?
If not, the oil lamp will go on.
 - b. Is there enough coolant in the radiator (is the engine overheated)?
If not, the coolant lamp will go on.
- C. No electricity at the output receptacles:
Are the circuit breakers on?

10. SPECIFICATIONS

Dimension

Length x Width x Height	ES6500: 1150 x 710 x 680 mm (45.3 x 28.0 x 26.8 in) EL5000: 1150 x 710 x 680 mm (45.3 x 28.0 x 26.8 in)
Dry weight	ES6500: 129 kg (284.4 lb) EL5000: 117 kg (258.0 lb)

Engine

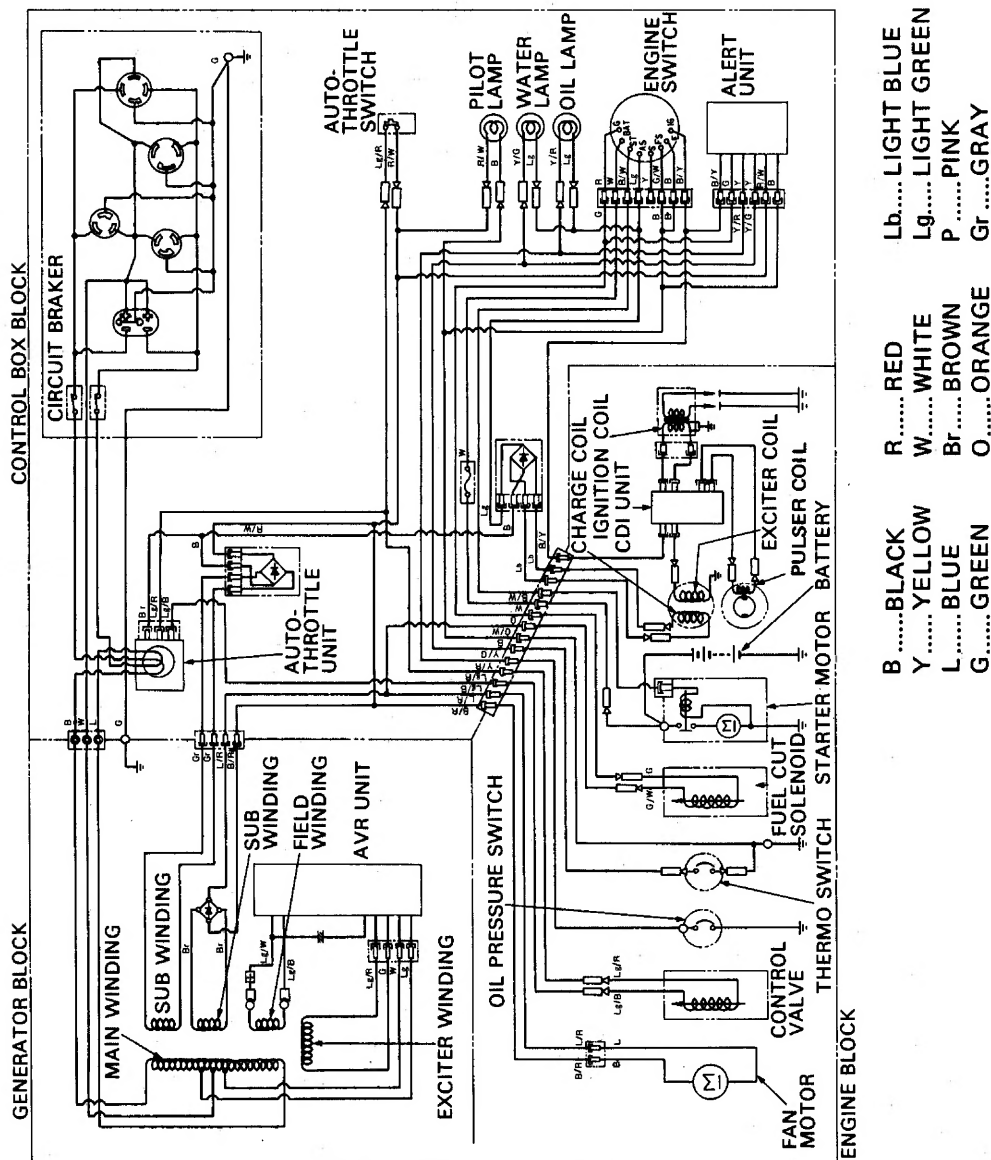
Model	Honda GX360
Engine Type	4-Stroke, O.H.C. 2 cylinder
Displacement	359 cm ³ (21.9 cu in)
[Bore x Stroke]	[58 x 68 mm (2.3 x 2.7 in)]
Compression Ratio	8.5 : 1
Engine Speed	3,600 rpm
Ignition System	C.D.I.
Oil Capacity	1.4 ℓ (1.48 US qt)
Cooling System Capacity	2.0 ℓ (2.11 US qt)
Fuel Tank Capacity	16.5 ℓ (4.36 US gal)
Spark plug	BPR6HS-10 (NGK)

Generator

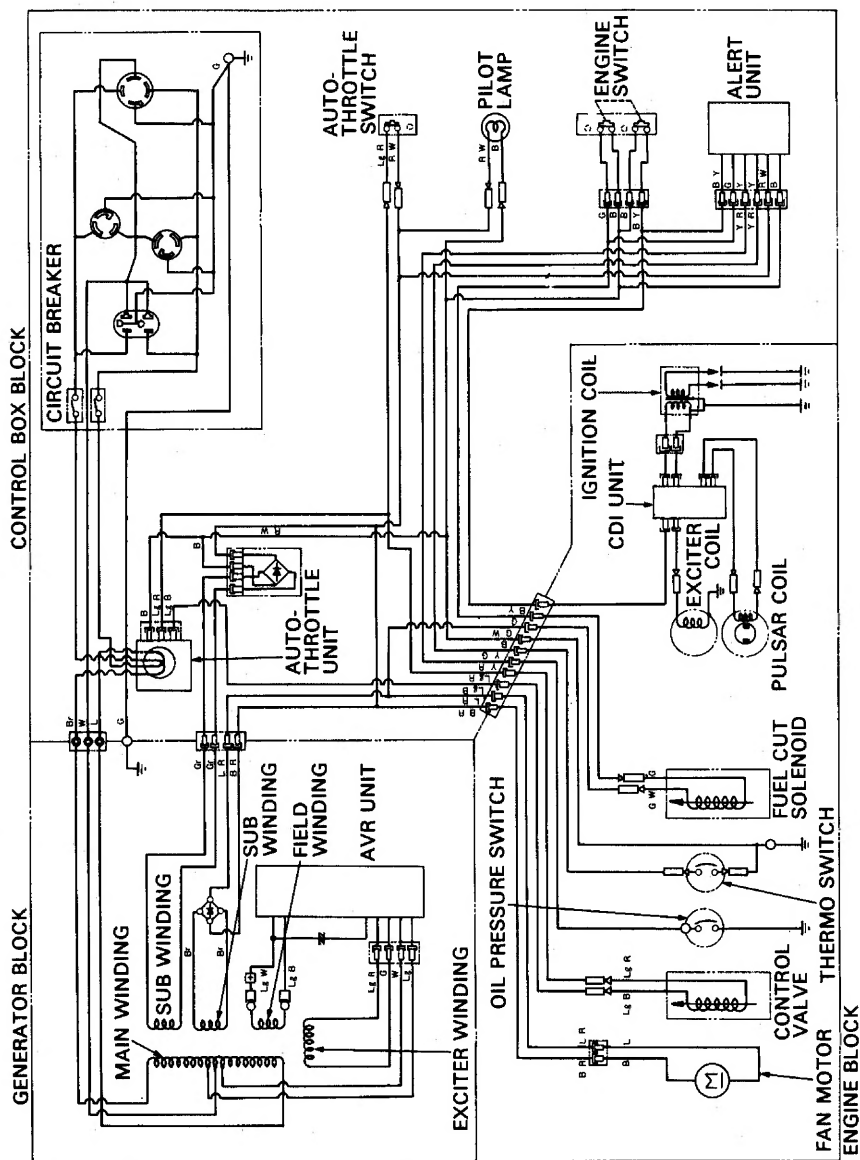
AC output	Rated voltage	120/240V
	Rated frequency	60 Hz
	Rated ampere	ES6500: 50.0A/25.0A EL5000: 41.7A/20.8A
	Rated output	ES6500: 6.0 KVA (6000W) EL5000: 5.0 KVA (5000W)
	Maximum output	ES6500: 6.5 KVA (6500W) EL5000: 5.0 KVA (5000W)

11. WIRING DIAGRAM

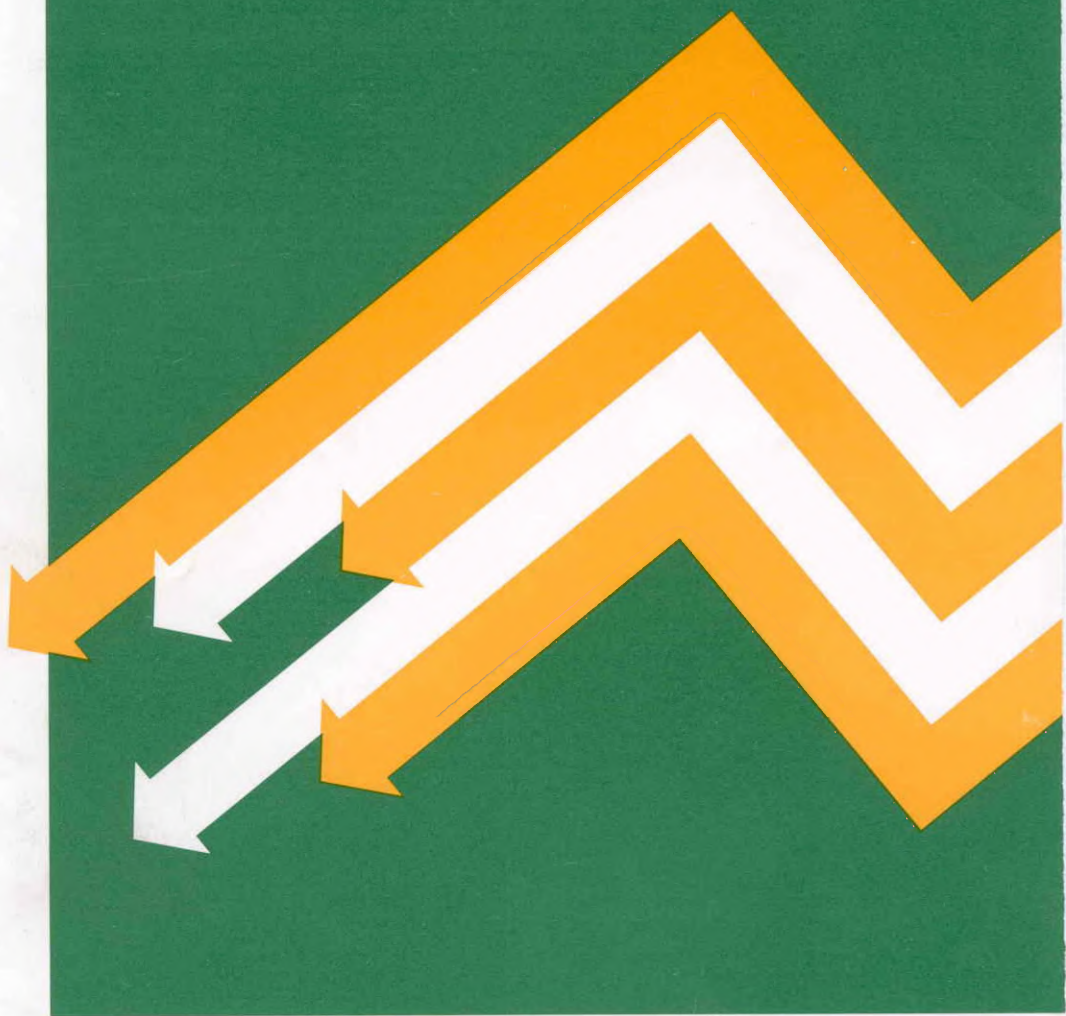
< ES6500 >



< EL5000 >



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